

CONTROL SYSTEM OF TRANSFORMER

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Abstract of JP60055604

PURPOSE: To control an exciting rush current effectively by supplying a DC exciting current so as to make residual magnetic flux density in cores of two legs equal in magnitude and reverse in polarity with each other and applying an AC voltage to two windings of the two legs within the period while polarities of instantaneous values of steady values of AC magnetic flux density owing to the AC voltage being in the opposite relation with each other.

CONSTITUTION: When an exciting current is made to flow in windings on the side toward a power source of a U-phase leg and a W-phase leg of a transformer 10 from a DC power source 32, DC excitation corresponding to magnetic field H_p is applied to cores in the U-phase and W-phase legs. If the magnetic field H_p is made large, residual magnetic flux density at the W-phase leg or the U-phase leg is $BrW = +Br$ and $BrU = -Br$, and residual magnetic flux density BrV at a V-phase leg becomes substantially zero. Accordingly, let magnetic flux density of $BrU = -Br$ and $BrW = +Br$ and generate in the U-phase leg and the W-phase leg respectively and let that of $BrV = 0$ generate at the V-phase leg, and moreover, let a making phase angle ψ of an AC power source voltage be $\psi_U = 210^\circ$, $\psi_V = 90^\circ$, and $\psi_W = 330^\circ$, all transient DC components of the flux density BtU , BtV , and BtW can be made zero. Therefore, exciting rush currents which flow into the windings on the side toward the power source 12, 14 and 16 can be effectively controlled.

